The Citrus Industry

THE ONLY PUBLICATION IN THE WORLD DEVOTED EXCLUSIVELY TO CITRUS FRUITS

Issued Monthly

Representative of every interest—
Representing no special interest.

VOL. 1. JANUARY, 1920. NO. 1.

Some of the important citrus troubles are shown on the Grapefruit Leaf used as our trade mark. At left is the adult White Fly, next the Rust Mite, near the tip the Purple Scale, and in the upper middle the disease known as Scab of Grapefruit. All but Scab are shown more or less enlarged.

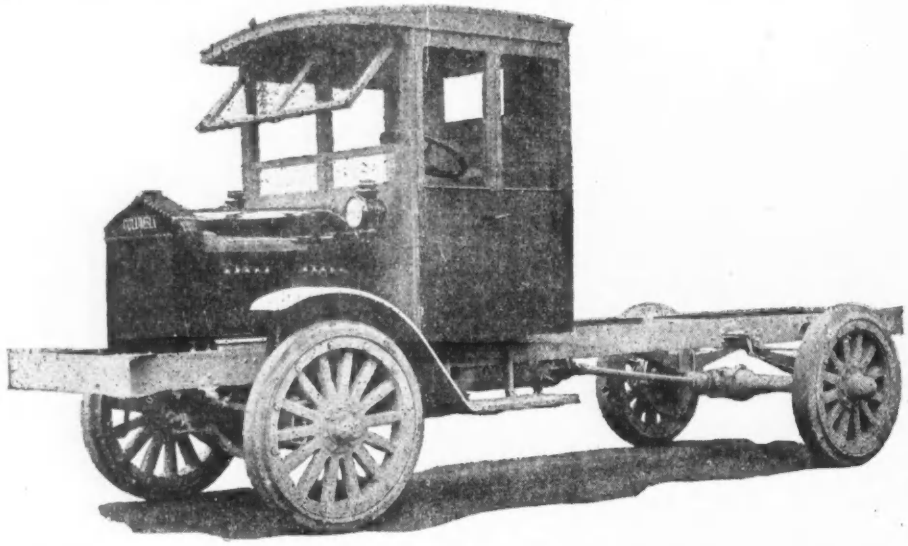
MR. TRUCK BUYER:

What do you get for your dollar, Inflated Value or Fresh Paint and Promises?

Columbia Trucks

Give you a Real Guarantee at Fair Prices

Be honest with yourself, compare values, compare trucks, not one today and another tomorrow, but side by side. Take each feature one at a time and use your own common sense. When you do this you will learn what constitutes a real standard of value.
COLUMBIA TRUCKS INVITE COMPARISON REGARDLESS OF PRICE.
We do not believe that defective material or workmanship can develop in 90 days.



When any other manufacturer of motor trucks will give you a guarantee for two years, and free monthly service for one year, we will admit that they have as much confidence in their truck as we have in Columbia. Is that a fair statement?
There are no startling innovations in a Columbia, if we went out of business tomorrow you can get our parts quickly, most of them in Tampa, and strange to say, you will find a great many of them in trucks costing over $1,000.00 more than Columbia. That's why we ask a comparison of values.
Don't be misled by yellow, red, green or any other kind of paint, don't buy statements that cannot be verified. Buy truck value. There's lots of good, honest trucks on the market— Columbia is only one of them.
Remember any salesman who objects to Columbia comparison has a reason.
We are always glad to send a Columbia for either inspection or comparison at any time or place. Protect your investment, demand a comparison and then buy the truck your judgment dictates.
If you want to see a Columbia,, Phone Tampa 4839. Dealers for South Florida.
There will be a demonstration of Columbia Trucks at the South Fla. Fair, Feb. 16-21.

Arango Motor Car Co.,

1109 Tampa Street

Francisco Arango, Jr. **Tampa, Florida**

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The Necessity for Cleanliness

By P. L. Waycoup

The best efforts of growers may be exerted toward the production of clean, bright, healthy fruit and those efforts go for naught as a result of the untimely appearance of decay in fruit while in the packing house or in transit, or later upon its storage in the hands of a jobber.

To borrow the phraseology of some of our medical friends, decay in citrus fruits is not contagious, but actually it is what our medical friends would denominate as infectious. Decay breeds more decay. Contact with actual decayed fruit brings with it decay, and the vicious little spores can wreak untold damage unless eradicated or controlled. One of the worst things about decay is its progressiveness. If a car arrived at its destination today with, let us say, 10 per cent decay and be accepted upon that basis, the troubles of the purchaser really have just begun. Tomorrow the 10 per cent has grown to, say, 12 per cent. By the following day it may be materially increased. Nor does it suffice that the fruit be repacked at considerable cost to the purchaser. It may thus be repacked and all except apparently fruit wholly sound dumped, but the decay will continue, due to the absorption of the mischief making elements by paper wraps and their presence upon the interior of boxes and other surroundings.

Many a jobber has purchased a carload of citrus fruits after making what he regarded as a liberal allowance for the decay he found, and congratulated himself upon the purchase. However, the result invariably has been to find that what was at first regarded as a liberal estimate for the further inroads from decay was, as a matter of fact, almost a minimum estimate. In a few days the quantity of sound fruit remaining was far below what was anticipated, nor did this end the trouble. The fruit continued to melt down in the hands of those to whom it was sold and to cause very great dissatisfaction. Jobbers often have, as a matter of maintaining goodwill, absorbed claims resulting from such circumstances at considerable loss. It was felt necessary to honor such claims in order to preserve relations with an indignant retailer, though the jobber actually was in nowise at fault.

Therefore, it is customary to find the experienced wholesale fruit handler very wary about handling cars where any considerable amount of decay is present. The jobber is in the business to make money and it is necessary that every angle of the business be watched carefully in order to do so. The jobber, therefore, feels fully justified in making the best bargain possible if it is necessary to handle a car showing any considerable quantity of decay or blue mould. This is perhaps a little difficult for growers to understand. Often they figure if a car arrives at destination with 7 per cent decay it should be accepted by the jobber with deductions only upon the basis of the actual decay estimated. If growers who cling to this point of view only had to occupy the position of the jobbers for a brief time, they would rapidly change their views upon the subject.

There are several well-known primary causes for decay, and doubtless numerous smaller causes concerning which as yet we know very little. It is not my purpose at this time to discuss these causes. Rather, I would point out the profit which may come from limiting the spread of the infection just as far as is possible. This is not nearly so difficult as might appear at first glance. A conscientious following out of the remedies at hand often can produce splendid results.

Getting down to brass tacks, we find that control of infection of this sort is in a way largely similar to control of infectious diseases among humans. It must have its foundation upon segregation of the infected from the healthy, and cleanliness and sanitation. Citrus fruits will respond to clean and sanitary methods, even after picking, just as will humans or fine bred livestock.

Citrus fruits, as we all know, receive their nourishing juice through the stem. When cut off from the parent stem the supply of liquid ceases, but evaporation from the pores continues almost, if not as great, as when the fruit hung from the branches. If an orange be clipped and placed where exposed to the air practically from all sides, it will gradually shrink in size, due to this evaporation, until finally there is left a little dry ball of extreme hardness, perhaps only half as large as the original fruit. All of us have seen

(Continued on page 22)

Citrus Growing in Isle of Pines

By E. W. Blossom

Sixty miles to the south of Cuba lies the Isle of Pines; a tropical Eden, where it is always warm in winter, and seldom too warm for comfort in summer; an island where some men have found a fortune in the growing of citrus, and where others have buried hope and fortune, and some few having lost all their possessions have finished by the suicide route and lie in the little cemetery back of Nueva Gerona, the capital city.

It is an enchanted island, an island of great promise to the man who would make money in the citrus industry without danger of a freeze, and with the assurance of being comfortable and taking life easy while he makes his pile, and to the man with plenty of capital to back his venture it may be an island of fulfillment as well as promise, but he must have the capital.

Too many have gone there from the north "on a shoestring" and having bought a tract of land from a land speculator and set out their grove, have failed because they had not the means to live during the four or five years before the taking of the first crop, and to buy the fertilizer, which must be spread about the trees twice each year.

The fruit, which is nearly all grapefruit, as there are almost no oranges shipped, reaches maturity at least six weeks before the earliest of the Florida fruit, and when well matured on the tree is of superior flavor. This statement will doubtless be received with scorn by the Floridian, but the writer has lived for some years on the Isle of Pines and for the last two years in Florida, and has yet to see a Florida grapefruit of more delicious flavor than the island fruit, and again the sugar content is greater.

The soil is very different from that of Florida and is very peculiarly distributed, one ten acre tract often having several different sorts of soil, lying in sections or belts with sharply defined borders, and running from a sort of rocky lava crust (the island is of undoubted volcanic origin), to a rich dark loam, free from stones and in which anything will grow with practically no effort, the intermediate varieties behind a blue clay and a reddish sand, and the best variety of citrus land, which is a gravelly soil, full of small pebbles.

It is this land which grows the grapefruit, oranges and limes to perfection for when grown in the loam the trees run largely to tops and leaves and not to fruit, whereas in the gravel the trees do not as a rule attain anything like the height of the Florida trees, but give themselves to producing the fruit, always providing that sufficient commercial fertilizer is supplied, and this is a big item in the account, for during the last year that the writer was on the island, the price of tree fertilizer was from $77 to $85 per ton, from five to ten pounds being commonly given to each tree twice a year.

All fruit is shipped from the port of Nueva Gerona on the steamer of the Isle of Pines S.S. company to Batabano, Cuba and thence by rail to Havana where it must be transshipped, generally being sent to New York by Ward Line boats or by the United Fruit Company, although the Flagler line carries occasional shipments, via Key West. This shipping program with its three loadings, necessarily makes the cost much greater than the expense of getting the Florida fruit to market, but this is of course, offset to a great extent by the fact that the fruit is earlier than any other, and the well matured fruit brings fancy prices in the northern markets.

There are one or two large growing concerns in the island, notably the Swetland Groves Company, at San Francisco Heights, which has an investment of over a million dollars and has been in operation for some years, and is reported to have made fortunes for its stockholders.

The greater number of growers, however, are the small owners who have from ten to thirty or forty acres, and who if they have any land suitable depend on a crop of peppers or eggplant to bring them in an annual income, while they are waiting for their new groves to reach a bearing age.

There has always been a woeful lack of cooperation among the growers which has retarded the growth of the industry and tended to keep the individuals from making the money they might have made, if they could only have gotten together and held together.

Time after time have associations and exchanges been formed and community packing houses erected, only to die a slow and lingering death through mismanagement or sheer inanition and lack of pep on the part of the membership, the meetings being poorly attended and everybody seeming to have a profound lack of confidence in everybody else.

At any rate, practically every attempt along the lines of cooperation has been a failure until anybody who tries to start any sort of cooperative organization is looked upon with extreme suspicion by most of the growers whom he approaches with his plans, but until some practical system of cooperation is put in practice, the industry can never hope to take its place among the great producing units of the citrus world.

The fact that the island is under Cuban government (of a sort) has held back the big capitalists of the States from developing it as it might be under our government, and this fact of Cuban domination is bitterly resented by the American colonists, who feel that it rightfully belongs to the United States by reason of the treaty of Paris, which "ceded to the United States of America, all the islands of the Carribbean, formerly owned by the Spanish government, except the island of Cuba . . ." which seems to the American settlers to sufficiently settle the status of the Isle of Pines as an American possession, the only apparent claim which the Cuban government has to set up in opposition, being that the island has always been governed while under Spanish rule, by a governor from Cuba, acting under the governor general of the larger island, and the more impressive fact that they were left by the American army of occupation in possession, and have remained so, which is, after all, "nine points of the law."

Attempts have been made repeatedly by the colonists to have the matter of government settled once for all, by bills introduced into the congress of the United States, to fix the status of the island; to declare it an American possession, or to cede it to Cuba in exchange for a coaling station, but all of these attempts have been pigeonholed, so that the island

still remains a sort of "no man's land" with the Cubans in possession, and this in spite of the fact that the American population of the island, in 1916 was greater than the Cuban, except in the city of Nueva Gerona, which is the seat of government and a typical Spanish city.

Possibly the greatest drawback to the development of the citrus industry as well as to everything else in the way of commercial endeavor is the fact that the island is visited almost periodically by fall hurricanes, which generally destroy great quantities of the growing fruit just about the time that it is commencing to color up and everybody is counting on their shipments. Generally the hurricane strikes the island during the months of August or September and leaves the ground about the groves covered with blown-off fruit utterly good for nothing, and occasionally unroofs the houses and does much damage, the big hurricane of 1917 nearly paralyzing the commercial life of the island, wiping out entirely many small growers and leaving some of them with not enough money to get away, besides having no houses or buildings left to live in.

The greatest need for the success of the industry outside of the spirit of cooperation is a direct route to the United States, avoiding the loading and unloading at Batabano and Havana, and this doubtless could be had if an organization of the growers could be formed that would stick together and take in all the parties engaged in the industry, who would then be of sufficient strength to stand a show of getting what they went after.

Much has been written regarding the island as a place in which to live, mostly in the way of propaganda, issued by the land companies, located in the north, and the prospectus gotten out by one of the largest of these, and which is known among the settlers as "The Dream Book" is well calculated to make the individual who is tired of the snow and ice and cold weather of a New England climate, long to get to the island without delay, and notwithstanding the fact that a good deal of fun is poked at the "Dream Book," by those on the island, the statements therein contained are really true, although of course being a prospectus, the drawbacks are left out.

It is an ideal place in which to live, as regards climate. I have talked with many people who came there from Southern California and from all parts of Florida and they are all agreed that never have they seen an all-year climate to equal it, some travelers expressing the opinion that it is rivalled only by the Hawaiian Islands.

Rarely does the temperature in the winter fall below 60 degrees, the lowest record being 47 degrees, and that only for an hour or two in the early morning. And in the summer, which is the rainy season, while the temperature frequently runs well over the 100 mark, there is so slight a percentage of humidity that there is nothing like the discomfort experienced in Florida, or in Southern California, and the refreshing showers which fall for an hour or two nearly every day during this part of the year cool off the air, while there is practically always a light breeze blowing.

There has never been a case of either man or beast being overcome by the heat.

For the tourist who desires to spend a winter quietly in the most delightful climate in the world, there is no place more attractive, and if direct communication could be had and the island was under American rather than Cuban government, there would be a tremendous tourist traffic, but as it is although there are a few excellent hotels which cater to the tourist trade, it is not sufficiently large to be classed as an important source of revenue to the island.

There is no citrus land in this part of the island, and no white persons live there except a family or two during the winter season engaged in the business of entertaining tourist hunting and fishing parties, the other inhabitants of this part of the island being negroes from the Cayman islands who engage in fishing and cocoanut raising.

There are three of four low mountain ranges which abound in caves, tenanted by millions of bats of some six species, which fly about at night and keep down the mosquitoes which otherwise would make life unbearable. The bat guano is mined and sold for fertilizer to the vegetable growers, the price being when I was there, $12.50 a ton.

There are about sixty miles of excellent calzada (government maintained road) which connect the various colonies, and many other roads in more or less passable condition kept up by the colonists who turn out in "road parties" at the close of each rainy season and put in two or three days in road mending, to repair the damage caused by the freshets and washouts, the rains changing a trickling little arroya into a roaring bridge destroying torrent in a few hours' time.

Living conditions are somewhat primitive especially in the colonies of the interior, although at Nueva Gerona there is an electric light and ice plant, but with the eception of a small narrow gauge line which was in process of building from the Swetland plantations to the docks, before I came away, there is no railway and no telephones on the island. Kerosene and gasoline is imported in five gallon tins and nearly all the other staples come from the United States and pay a duty so that the prices are somewhat higher than obtain here.

On the other hand the native products, including fresh meats and fish are much cheaper. At the time I went to the island fresh fish of any variety were sold alive (Cuban law prohibits selling a dead fish) at ten cents a pound, and meat, any cut of beef or pork at fifteen cents, but these prices were raised during the war to about fifteen cents for fish and twenty-five for meat. If the grower will take the pains to learn the rudiments of Spanish and will trade in the Cuban tiendas (stores) almost anything can be bought much cheaper than at the American groceries, but comparatively few do this, prefering to stand on their American dignity and rather proud of the fact that they "have lived years in the island and do not know a half dozen words of the native lingo."

I started to write an article on the citrus industry, and it seems to have developed into a rambling description of the country, but when I get on this subject it is difficult to know where to stop. The account of the citrus industry may seem somewhat pessimistic, but it is not intentionally so. For instance the present year happened to be one which escaped the hurricane, and I am told that 200,000 boxes of grapefruit have already been shipped north, which brought good prices, and everybody is making money. It is my opinion that the Isle of Pines has a splendid future as a citrus country, especially if an organization can be formed, the officers and members of which can agree upon a policy and stick together, and above all if the island is ever brought under American control, where it undeniably belongs.

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THE CITRUS INDUSTRY

The birth of The Citrus Industry is not an accident. It is not the result of hasty or unconsidered action. It is the culmination of plans conceived years ago—plans which have been consistently followed, fully matured and deliberately developed. In putting these plans into execution with this, the initial number of The Citrus Industry, it is the purpose of the magazine to serve every phase and interest of the industry along legitimate lines.

The Citrus Industry will be as wide and far-reaching in scope as the industry itself. It will confine itself to no restricted field nor to any special phase of the industry. It will be as wide as the field of citrus culture, and as broad as the field of citrus markets. It will endeavor to represent fully and fairly every citrus interest, whether in the grove, the packing room or the market place.

That the citrus industry, with its thousands of commercial growers, its millions of boxes of fruit, and its hundreds of millions of valuation, affords a field for a publication devoted exclusively to citrus fruits, we firmly believe. The Citrus Industry will know no side issues. Recognizing the importance of the citrus industry, it will devote itself exclusively to the discussion of topics vital to the welfare of the industry and to the dissemination of news and features dealing solely with citrus problems and the development and expansion of the industry. To other publications will be left the task of dealing with affairs foreign to the special industry which this magazine is established to represent and which it claims as its special and exclusive field.

With representatives in every section of the citrus growing belts, with the co-operation of experts in every field of citrus endeavor, and commanding as it does the services of men thoroughly familiar with the making of publications in the special field, The Citrus Industry believes that it will be able to serve the industry in no mean degree.

The columns of The Citrus Industry will be open to a full and free discussion of any topic of interest to the grower, the packer or the shipper of citrus fruits. Its every effort and its entire energy will be devoted to the upbuilding of conditions from the planting of the tree to the placing of the fruit in the hands of the ultimate consumer.

The Citrus Industry invites the co-operation, and hopes to merit the confidence, of every grower, every packer and every shipper of citrus fruits. The growing of citrus fruits has become a great industry, and is becoming still greater. The Citrus Industry aims to be big enough and broad enough and fair enough to represent that industry.

SALT AND PEPPER ON GRAPEFRUIT

Even among the growers and shippers of grapefruit, it appears, we are just beginning to become acquainted with this most delicious of table fruits. At least, we are just beginning to learn something of the possibilities of its uses and the varied manners in which it may be served.

Among Northern consumers it has always been the custom to serve grapefruit with sugar. The possibility of serving the fruit in any other manner has apparently never occurred to the average user. In Florida, it is true, and possibly to some extent in other sections where grapefruit is grown, there have been a fastiditous connoisseurs who have recognized the superior excellence of the fruit when served with salt, but the number has been few.

It remained for a native of North Carolina to discover that grapefruit shows itself to best advantage when served with salt and pepper. A North Carolinan may always be depended upon to get at the root of any subject he tackles. He is to the South what the Connecticut Yankee is to New England. He is an investigator. He wants to know, and he is never satisfied until he does know.

So, when this particular native of the "Tar Heel" State tasted grapefruit, he pronounced it good. But he immediately asked himself if it might not be made better. Then he began to investigate. He was acquainted with canteloupes and the manner of their serving. Ninety per cent. of the canteloupes eaten, he knew, are served with salt and pepper. In general appearance, the grapefruit is not unlike the canteloupe. Both are cut in half before serving. In both instances, the seeds are removed and the pulp eaten with a spoon.

So far his diagnosis ran in parallel lines. But here came the parting of the ways. Canteloupes are served with salt and pepper; grapefruit with sugar. Right there our North Carolina friend "went us one better." He substituted salt and pepper for sugar on his grapefruit—and immediately went into ecstacies over his discovery.

And now the doctors are backing up our "Tar-Heel" friend by declaring that the tonic effect of the grapefruit juices are greatly heightened by the use of salt and pepper. Some of our own growers and packers have tested out the merits of the salt and pepper theory. Their first experiments, it must be confessed, were made with trepidation and skepticism, but they declare that the fruit thus eaten is far superior to that served with sugar.

If this be true, every citrus interest should line up to educate the general public along this new line of serving. It should add greatly to the consumption and popularity of the fruit.

SHIPPING UNRIPE FRUIT

One citrus expert declares that the growers of Florida have sustained a loss of more than a million and one-half dollars through the shipment of unripe and undersized fruit to the Eastern markets.

Whether or not the figures given represent the exact loss to Florida growers, there can be no question that the loss from this cause has been very material. The marketing of inferior articles of any kind must result in injury to the industry affected. Whether it is fruits, or vegetables, or grains, or sea foods, the shipment of inferior or unsaleable articles in considerable quantities from a given locality, is certain to have a depressing effect upon all articles shipped from that locality. The good must suffer from this effect along with the bad.

The shipment of unripe or undersized citrus fruits is no exception to the rule. If the buyer receives a few carloads of inferior fruit from a given locality, he becomes suspicious of all fruit coming from that locality.

In this matter, the reputation of Florida citrus fruits is at stake. It behooves every shipper, not only to look well to his own shipments, but to use his best efforts to discourage the shipment of inferior fruit by others. Self-interest, if not, indeed, self-preservation, demands that none but strictly saleable fruit finds its way to the markets, insofar as diligence on the part of the shipper can attain this end.

Many of the citrus growing counties of Florida are preparing to make exhibits at the South Florida Fair to be held in Tampa during February. Much rivalry of a friendly nature is anticipated between the growers of the citrus producing counties of the State.

The demand for nursery stock is not confined to the larger citrus nurseries of Florida and California. The Satsuma nurseries of Mississippi, Alabama and Texas also have been taxed beyond capacity to meet the ever growing demand for young trees of this delicious fruit.

THE CAR SHORTAGE

Undoubtedly the big grape movement in California had a great deal to do with the shortage of equipment for citrus loading. Undoubtedly, also, other alibis produced by railroads in various sections have had some effect in producing a car shortage.

However, it looks as if the nail had been hit squarely upon the head by those who advanced the thought that a restoration of pre-war schedules by the railroads would go a long way toward relieving any existing car shortage either in California or in Florida. When a car requires from 50 to 100 per cent. longer to travel from its loading point to destination, and correspondingly increased time is required for it to travel back, a grammar school pupil can figure there must be more cars or else a scarcity will be found.

The Railroad Administration must produce some remarkably convincing evidence if it attempts to disprove these facts. Up to now we have not heard of the Railroad Administration making any effort to do so.

CITRUS GROWERS PROGRESSIVE

The citrus growers of the United States are among the most progressive of all its citizens.

The truth of this saying might be demonstrated in many ways, but it is necessary only to cite one instance.

It is an accepted truth that the most progressive community in any State is the one which maintains the best system of roads.

Gauged by this standard, the citrus growers are the most progressive citizens in every State devoted to the culture of citrus fruits.

The best roads to be found in the State of Florida are in those counties which are most vitally interested in the growth of citrus fruits. The roads of Polk and Lake, of Hillsboro and Pinellas, of Orange and Dade are famed throughout the land.

The best roads in California are to be found in the citrus growing counties of that wonder State.

In the Satsuma producing States of Alabama, Mississippi, Louisiana and Texas, the best roads in each State are to be found in the Satsuma belt of the Coastal Plain region.

True, the citrus growers have benefitted by the building of good roads. But so, too, might the growers of other products have benefitted had they been as far sighted as the citrus growers.

Which fact but emphasizes the original contention that the citrus growers are among the most enterprising and progressive of all the citizens of the United States.

PLANT CITRUS TREES

To the winter tourist from the bleak and wind-swept prairies of the great northwest, or from the snow-piled hills and valleys of the northeast, and thousands of such tourists annually visit the citrus growing sections of our land, nothing so appeals as the beautiful well cared-for citrus groves.

Our palms and palmettoes they may admire; our magnolias and our eucalyptus trees may delight the eye; our hibiscus and our poinsettias may bring forth rapturous words of delight, but nothing so speaks to the tourist of the sub-tropical nature of our climate as a well-kept orange tree.

Entirely aside from its commercial value, every farmyard and every city lawn should possess its citrus trees—but they should be cared for and made a source of beauty and delight to the visitor from abroad.

For, while it is true that nothing so pleases the visitor from the North as well-kept citrus trees, it is likewise true that nothing is more unsightly than an old, unpruned, diseased and dying orange tree. A well-pruned, thrifty citrus tree is an asset to its owner and to the community. A diseased, unpruned, unsightly one is a liability which neither should countenance. If the owner lacks the pride which should prompt its removal, the community should take a hand and eliminate it on the ground that it constitutes a public nuisance.

Transfers in citrus lands, both in California and Florida, indicate that the demand for good, bearing groves is far in excess of the supply. In both States, many new groves are coming into bearing and hundreds of new ones are being planted.

THE MARKET OUTLOOK

Citrus growers apparently have reason to look forward with every confidence to good markets during the next few months.

The situation up to the holidays has been bad. There is no need to dodge the fact.

The Florida crop was some weeks later than normal in point of maturity. Seemingly no one took this fact into consideration, and the volume of immature, unpalatable, unsightly Florida fruit which was dumped upon the markets played havoc with them. Due to the car shortage in California during the normal Valencia shipping period perhaps three thousand carloads of Valencias were left over to come upon the markets later. Green skinned and immature Florida oranges coming in competition with the California offerings literally drove the consuming public to California Valencias. This is not to be wondered at when the vastly better appearance of the mature California fruit is considered.

As a consequence, many dealers who early stocked up with Florida offerings were left with the bag to hold and did not care to have the experience repeated. Therefore, the demand for Florida orange offerings fell off very considerably, and the markets declined in consequence. California growers for a time profited by these conditions, but a little later a considerable dryness developed in the Valencias and they did not offer to the public satisfactory eating quality necessary to stimulate a big consumer demand. Considering the generally unsatisfactory quality of both Florida and California offerings reaching the majority of Northern and Eastern markets up to December 15, prices were retained at a fairly good level. Porto Rican shipments suffered along with others and did their share in contributing to the disorganization of the markets, but through no fault of their own. Exceptionally large shipments from Porto Rico were caught in New York harbor at the time of the strike of the dock workers and when finally they came upon the markets a good portion was not satisfactory to the trade which normally absorbs them.

On grapefruit both Florida and Isle of Pines shippers were serious offenders in placing immature fruit where it could reach the consumers. Early grapefruit is seldom good eating even with a plentitude of sugar. In view of the nationwide scarcity of sugar the early offerings of great volume of immature grapefruit were doubly unfortunate in the effect it had upon prices.

Perhaps the outstanding feature of the markets up to Christmas was the avidity with which exceptional carloads of good fruit were taken up by the big markets at prices away above those generally prevailing. This happening in the face of deciduous offerings many times as great as normal at that time of the year constituted one of the strongest grounds for an optimistic belief as to the price situation when the early difficulties have been cleared away. Undoubtedly the public is ready to take oranges off the friut stands in large quantities and at very good prices, provided they are of fair appearance and satisfactory eating quality. Up to December 15 the public had little chance to show its real feeling because of the lack of quality of the growers' offering. After the first of the year doubtless all this will be changed and prices which other fruits are commanding will make it sure that both oranges and grapefruit of good quality are going to be absorbed rapidly and at most satisfactory prices.

Florida's crop of both oranges and grapefruit apparently is nowhere near as large as early estimators figured. The California navel crop is admittedly an off one. It looks as if there would be just about a normal supply of citrus fruits in the markets from all regular sources, and it looks as if they must necessarily find ready buyers among people whose scale of living has become markedly higher than it was a few years ago.

Proper care in the packing and marketing of the fruit is quite as essential as proper care in fertilization and cultivation.

The truck has superceded the mule on the roads, and the tractor is fast succeeding the mule in the groves.

The holiday demand for citrus fruits was exceptionally good. Only the stringency of the car shortage operated to maintain shipments on a normal basis.

Shippers generally have accepted with equanimity, if not with gladness, the railroad administration order to load all cars to capacity. Citrus shippers are good sports.

It is only the novice or the drone in citrus culture who trusts too much to Providence. The experienced grower of good judgment neglects no opportunity to aid nature or to protect his trees.

Citrus canker no longer looms as a present danger to Florida groves, but grove owners should remember that "eternal viligance is the price of" exemption from future inroads of the infection.

Those California growers who resorted to the "smudge pots" may have wasted some oil, but at least they have the satisfaction of knowing that had the freeze come, it would have found them prepared.

Texas Satsuma groves are reported to be recovering nicely from the freeze of two years ago. Owners have been devoting much study to the proper care and cultivation of their groves and are looking forward to good returns from their trees next year.

One of the missions of the The Citrus Industry will be to give the growers of one section a clearer insight into conditions existing in other sections of the citrus belts. Two articles in this issue, one dealing with the Isle of Pines and the other with Porto Rico, may aid in this direction.

The citrus growers of the Satsuma belt made a fine showing at the recent horticultural meeting at Auburn, Ala. Three varieties of oranges, two varieties of kumquats, satsumas and grapefruit were among the citrus offerings shown by growers of South Alabama and South Mississippi. It is said the quality of the fruit shown was the best ever placed on exhibition.

Making Progress in Satsuma Belt

By J. E. McPherson

Citrus growers of California have been inclined to look upon the development of the Satsuma industry of the Gulf Coast with indifference, if not with contempt. Even the growers of Florida, who have witnessed the Satsuma development at closer range, have not been without this feeling of skepticism concerning the ultimate success of the venture.

But regardless of the skepticism of outsiders and the open discouragement of many of their pessimistic neighbors at home, the real developers of the Satsuma industry have gone ahead with a determination and a faith in their ability to overcome all obstacles and win success in the end.

That this determination and faith is now being rewarded cannot be doubted by anyone who visits the groves of the Gulf Coast which have been developed by the pioneers in the industry.

At the outset, these pioneers were handicapped by lack of knowledge of proper planting and cultural methods. In the early stages, the industry was an experiment, resorted to by men who hoped to find some commercial crop suited to the sandy, cut-over pine lands of the section, which were lying idle after being depleted of their wealth of forest.

Casting about for such a crop, these enterprising pioneers determined to give the then almost unknown Satsuma a fair test. Through lack of knowledge, a series of hard winters, plant diseases and other obstacles, their early endeavors met with many reverses, and many there were who quit the effort in disgust.

But among these early pioneers were a few men of great determination, in whom the staying qualities had been developed to a high point. It is to these men, who resisted every discouragement, overcome every obstacle, that the Satsuma industry owes its present prominence.

These men, recognizing the handicap of unfamiliarity with the industry, set out to learn. They availed themselves of every opportunity to study the industry from a scientific standpoint, and they brought in experts to aid them in the culture of their trees. The government assisted with its experts, and here and there a few groves began to flourish, returning their owners a fair profit on the investment of capital and labor.

Encouraged by these examples, some of the discouraged ones again took heart. New groves were set out under the supervision of men who had made a study of planting methods. Cultural methods were improved, steps were taken to protect the trees from disease and plant pests and marketing conditions were studied with a view to get the most out of the crop when it had been gathered.

That these modern methods have been successful is attested by hundreds of fine and profitable Satsuma groves in the Gulf region of Alabama and Mississippi, along the coast of Louisiana, where the fruit is known locally as "Louisiana Sweets," and further to the west, along the Gulf Coast in Texas. In the latter state, the freeze of two years ago seriously affected the crop and the trees, but in Alabama and Mississippi, and along the Louisiana coast, where better cultural methods had prevailed, the groves came through without damage even though an equal degree of cold was experienced.

While the Satsuma belt covers a wide latitude of territory along the Gulf coast, from Western Florida to Southwestern Texas, the greatest development perhaps, has been attained in the coast region of South Alabama and South Mississippi. Around Silverhill, Grand Bay and Crichton, Alabama, and near Ocean Springs and Biloxi, Mississippi, many fine groves have been built up. Along the Louisiana coast, too, the industry has been largely developed and many profitable groves are to be found in that section. Texas which has probably the largest acreage of any state in the Satsuma belt, has not as yet brought the industry into as great commercial prominence as the states farther east, but great progress is now being made by growers in that section.

The Money Grove at Ocean Springs, Mississippi, and the McDonald Grove at Grand Bay, Alabama, have long been among the "show places" of the Satsuma belt, and have firmly established the success of the industry.

The growers of South Alabama and South Mississippi some years ago realized that to properly study the many problems confronting them in the development of a new and practically unknown industry, a closer concentration of interest was needed, and they banded together in the organization of the Gulf Coast Horticultural Society for the advancement of their common interests.

This association has been active in promoting new and better methods of caring for the groves, increasing yields and fighting plant diseases and insect pests. Substantial aid has been given the federal and state governments in the eradication of citrus canker, of which there were no less than 600 cases in Alabama in 1916, as against but six cases at the beginning of the year 1919.

Improved cultural methods has resulted in much less damage to trees during severe cold weather, until now the average grower looks with complacency on the probability of freezing weather, knowing that his trees are in condition to withstand any but the roughest storms or the most bitter cold.

Among the men most active in the citrus industry in the Alabama and Mississippi fields are O. F. E. Winberg of Silverhill; W. H. Reynolds of Mobile; Colin McDonald of Grand Bay; Frank L. Lewis of Pascagoula, and H. D. Money of Ocean Springs.

Many Satsuma nurseries have been established in all of the states of the Gulf Coast, yet in spite of the growth of numbers of these nurseries, the planting of new groves has been going forward so rapidly that the nurserymen, like those in the citrus belt proper, have been unable to supply the constantly growing demand.

One thing which has been thoroughly demonstrated in the Satsuma belt is this: That a grove properly set out and properly cared for, will return its owner a goodly revenue with little danger of loss from cold, disease or insect pests; while the neglected grove is an expense and a burden to its owner and a detriment to the community.

Grapefruit Not a Luxury

By Arthur M. Duke

Just what is the difference between a necessity and a luxury? During the late well-known war this came in for considerable thought from almost everyone. We required to be told to lay off the luxuries in order to begin to get a line on what luxuries actually were.

Notwithstanding a large amount of free hand, if not to say fluent, thinking on the part of sundry and divers experts, near experts and dollar-a-year men, the question of just what things were luxuries and just what were necessities was never ironed out. Every expert who tried to lay down any hard and fast rules in the matter generally wound up by making more or less of a laughing stock of himself or herself before the list could be completed. The war came to a close before we were anywhere near a solution of the problem. Perhaps the war might have continued for a number of years longer without our having reached a solution.

If we want to be very precise and exact we have to say a necessity is something we must have, while a luxury is something we can do without. Now if we start in to enumerate the things which the human family possibly can do without we find we have left just about those things with which Adam started out in life, including approximately the same amount of raiment.

Judging from the standpoint of a latter day member of what we call civilization I state it as my belief the difference between a necessity and a luxury, in our modern civilized life, is largely a question of the matter of price. In this respect oranges have had most the best of grapefruit up to now in a general way. The consuming public has been accustomed to oranges now for a very great number of years. Through the teachings of our pathologists and health experts the public has come to look upon oranges and many other fresh fruits as taking their place in the list of present day necessities.

Grapefruit are relatively new. Like all new things grapefruit in the beginning were truly luxuries. It was Mrs. Potter Palmer, so it is said, who first gave grapefruit its popularity in the truly exclusive circles of the then brownstone fronts. Whether Mrs. Potter Palmer liked the taste of the grapefruit she had discovered on her visit to Florida or whether she felt her acquaintance with it gave her something of an edge on some competing hostess we cannot at this late date question. However, considering the handicaps under which the grapefruit of that early time suffered we can believe either one way or the other.

Thanks to the botanical sharks and progressive nurseryman, the commercial grapefruit of today is far different from the first early production. Yet, while grapefruit has been coming into popularity by leaps and bounds and the acreage devoted to its cultivation has grown amazingly there remain many thousands of persons in the great fruit consuming territories who not only never have tasted, but who actually have never heard of grapefruit. A well-known encyclopedia furnishes us with the information that the grapefruit was given its name because it "tastes much like grapes." That particular encyclopedia was put into print not so many years ago. I doubt if it has anything like the age of William Jennings Bryan's presidential candidacy. Probably it was printed since Thomas W. Wilson laid away the Thomas in mothballs and became the Woodrow Wilson of Princeton and Washington. The scientific writer who gives this lucid and compelling description of our favorite fruit was simply filling by guess work a gap in his otherwise extensive knowledge. His somewhat distinctively individual conclusions are of value to us only in showing there are a lot of things about grapefruit which are not as well known to many persons as they might be.

Grapefruit started its market life as a luxury. Now, when the time has come when it rightfully should take its place in our list of present day necessities and staples, there remains a disposition in many quarters to continue to class it as a luxury. The shipping and jobbing trade have had sufficient contact with grapefruit to remove any idea of luxury from connection with it. Yet there are today hundreds, and perhaps thousands, of retailers who continue to perpetuate grapefruit in the minds of their public as a luxury largely because they themselves have not learned that grapefruit no longer is a luxury.

With the present production of grapefruit there is no longer any reason whatever to class it with the luxuries for the special benefit of the wealthy and well-to-do portion of our populace. Instead, by reason of its health-giving and tonic properties grapefruit ought to be during a large portion of the winter months a most desirable adjunct to the poor man's breakfast table. The proper and frequent use of grapefruit is an assurance against many minor ills and ailments which may come to the Northern worker, housed indoors and working indoors during the cold winter months.

Generally speaking, there is this luxury idea against this. Many retailers catering to trade in the poor or working class section do not carry grapefruit at all, though they constantly stock oranges. This, however, is not the worst phase of the situation. Of the thousands of retailers who stock both oranges and grapefruit during the seasons they can obtain them, we find a considerable portion who insist on regarding grapefruit as in the luxury class. Thinking of grapefruit as a luxury they naturally seem bound to maintain its status by putting upon it a luxury price. While in the habit of handling oranges upon a certain margin of profit they refuse to handle the grapefruit for the same ratio of profit.

They price grapefruit high, apparently with the idea they are going to sell little of it and must make a big profit on what they handle. This not only prevents many possible purchasers from buying grapefruit, but restricts the purchases of many others who otherwise would purchase more freely.

Not long ago I had a concrete illustration of just how this works and just how a change of policy on the part of the retailer can exert a very wholesome effect upon the movement of grapefruit. I made the acquaintance of the manager of a small chain of stores which handles citrus fruits among other things. Having occasion to visit him later, I was astonished to find he was in the habit of obtaining a much larger margin of profit on his grapefruit than on oranges. He sold a considerable quantity of

(Continued on page 23.)

"SO SWEET EVEN A DOG WILL EAT THEM"

That is what George Aycrigg, superintendent of the Swann Groves, at Florence Villa, said as he fed the dog, "Cedrick," sections of a sun-sweetened orange from this six-year-old tree. When this picture was taken by James T. Swann, manager of the Swann Groves, it was laden with fruit, as may be seen from the picture. Mr. Swann packed four boxes of perfect fruit from this one tree, which is but a fair sample of the thrifty young trees in the 16,000-tree groves of the company. The Swann Groves at Florence Villa constitute one of the show places of the Florida Highlands.

Citrus Development in Florida Highlands

A Quarter Century of Observation

By Judge W. S. Preston

Having lived in the region indicated since before the time when there was enough citrus industry there to swear by, and having witnessed all phases of its development, I may, at least, claim some knowledge of the subject.

Prior to twenty-five years ago, the great bulk of the citrus groves of Florida were located north of the center of the state, and practically all in the lowlands. These groves ranged as far north as Jacksonville, but with the center of the industry in the vicinity of Ocala, the largest grove in the state at that time being the Harris grove on what is now Lake Apopka. A few scattering groves were found as far south as Arcadia.

The Highlands of South Florida at that time not only contained very few citrus groves, but were practically uninhabited. They constituted the huntsman's favorite resort, and as there were then no game laws, the settlers in the lowlands for a distance of a day or two's journey, frequently resorted thither for a supply of venison whenever their stock of meats ran low.

The writer has pleasant memories of numerous "camp hunts" where now for miles on end stretch beautiful orange groves loaded with their "apples of gold."

To those who have been "fed up" with the idea that all Florida is a flat country, but little above the sea level and mostly swamp at that (and it is surprising how many are victims of that delusion), it may be well to explain what is meant by the Florida Highlands.

Beginning a short distance south of the north line of Polk county and extending in a southeatserly direction half-way across DeSoto county, through the center of those counties, is a stretch of country about twenty-five miles wide that in the blessed pioneer days was known as the "Sand Hills," and it is literally a hill country.

Where the Atlantic Coast Line railroad main line crosses this region, through Auburndale, Lake Alfred, Haines City and Davenport, the railroad engineers gave an altitude of from 200 to 227 feet above sea level at Tampa, Auburnlade being given as the highest point between Tampa and Jacksonville.

This region is abundantly dotted with deep, clear lakes of soft water, which aggregate fully one-fourth of the area, and which give rise to the name of "Lake Region" which is frequently applied to this section. These lakes make this region a paradise for the fisherman and boatman.

It is in this beautiful land of lakes and hills that the Florida citrus industry is now centered, its acreage of orange groves now being greater than that of all the rest of the state combined, while the character of the soil is peculiarly adapted to the growth and development of citrus fruits.

In the old days, practically all of the orange trees were seedlings, and they seldom began bearing until eight years from the time of planting, and then but little. Indeed, this was about the minimum period anticipated by the early citrus growers. Some few trees were budded on sour (or wild) orange stock, but they were of slow growth and very small, and were not adapted to the higher lands.

About a quarter of a century ago some venturesome nurserymen began in a commercial way, to bud their orange and grapefruit on rough lemon roots, having proven this stock not only adapted to the highlands but giving a remarkably rapid growth and bringing the trees into bearing much more quickly. By the use of this stock and the improved methods of cultivation, a grove on the hills will produce more fruit the third year after planting than the pioneer growers secured by the old method in eight years.

With these discoveries came the expansion of the industry from a crop of less than two million boxes of fruit per annum to the present enormous yield. With many thousands of acres just beginning to bear and many more thousands of acres just planted and being planted, even the present great crops of citrus fruits will appear small by comparison within the next few years.

A quarter of a century ago no railroad touched the highland region save the main line of the Atlantic Coast Line across its northern border. Now the Haines City line cuts it almost through the center from north to south, and the Lake Alfred line from northeast to southwest to Eagle Lake, and a system of hard surfaced roads, the delight of residents and the envy of non-residents, connects the stations on these lines with all the farming country back, bringing it all within easy reach of market.

To one who sees all this now for the first time, it is a wonderful and great industry, but to one who has seen this country grow from a choice region in which to hunt wild turkey and deer, it seems little short of miraculous.

In this highland region many towns have been built, with churches, and schools, modern stores, electric lights, ice plants, telephone systems and all the modern conveniences of city life, making an ideal environment for the genuine pleasure of living.

And all this development is based upon and built around the citrus industry. Every town and hamlet has its packing house, and many have more. Through these packing houses the crop is handled quickly and scientifically, and during the shipping season a constant stream of golden fruit flows to northern markets to bring back its stream of golden shekels for the growers.

With the improvement of the country, the improved methods of cultivation and marketing, and the modern conveniences for handling the crops, has come a greater profit to grove owners, so that all over this beautiful highland region now lives a prosperous, contented and up-to-date people.

Italian lemon exports to other countries in Europe will be resumed to only a limited extent during the present year, according to information received through the office of markets on the Italian situation.

The report states further that the total export from the Palermo district is expected to reach one and one-quarter million boxes. The industry is said to be in a very prosperous condition notwithstanding the diminished exports, by-products having prospered especially, due to government aid.

Palmer Estates to Develop Citrus Groves

One of the greatest of the recent citrus development projects in Florida, and one which promises to bring Manatee county into still greater prominence as a citrus producing section is the proposition of the Potter Palmer estate to at once develop a 16,000-acre tract in that county.

This tract lies along Sarasota Bay and the Gulf of Mexico, and by reason of its proximity to these bodies of water is practically immune from danger of frost.

When Mrs. Potter Palmer died a year ago, she left an estate which included more than 100,000 acres of Florida land, 77,000 acres being located in Manatee county.

Steps are now being taken for the development of this vast tract of land and while much of it will be devoted to stock raising and truck growing, there is a considerable portion of the estate which is ideal citrus land. Of this portion, it is the plan of the representatives of the estate to at once develop 16,000 acres. By the close of the year 1920, it is expected to have this entire acreage planted to citrus fruits.

The tract will be cleared, laid out and planted by the Potter estate, and will then be subdivided into tracts of from 100 to 1,000 acres. When the permanency of the trees has been established, these tracts will be placed on the market, but none of them will be sold except to persons who are financially able to carry on the work on the scale contemplated by the original plan of development.

P. H. Roberts of New Orleans, has been placed in charge of the development project, and he is being assisted by Lawrence May, a man who has had much practical experience in the planting, care and development of citrus groves in Florida.

Two enormous steam stump pullers will be utilized in clearing the land, and steam tractors will be used in the preparation for planting the trees.

A. C. Honore and family, and Honore Potter and family, heirs of Mrs. Potter Palmer, are arranging to make their homes on the estate, the latter residing at Mrs. Palmer's beautiful estate, The Oaks, thirteen miles south of Sarasota.

The Oaks comprises about 400 acres of her holdings and is located on the Gulf of Mexico. This part of the estate has been developed and is now one of the beauty spots of Florida.

The house is situated on a slight rise in ground, on the edge of the water and is entirely surrounded by large water oaks from which the name "Oaks" is derived.

A private light and water plant furnishes water and light; several boats are kept at the pier which is located directly in front of the house, the entire year and it is thought Mr. Potter, in addition to his yacht, will bring his recently acquired speed boat to these waters.

Surrounding the house are numbers of small groves and large flower gardens with flowers and plants from all sections of the world. Flowers and plants were Mrs. Potter Palmer's hobby and her place shows the zeal with which she worked to make it one of the beauty spots of South Florida.

In addition to the development of the estate a large canning factory is to be established at Fruitville, near Sarasota, this is to accommodate the truck growers in that section and is expected to be in operation in time to meet the demand next fall. This plant is being built by the Oscar Dowling Canning Company of New Orleans.

Says Shipment of Unripe Fruit Hurts Sales

At the last meeting of the directors of the Florida Citrus Exchange, held at the Exchange headquarters in Tampa, Business Manager C. E. Stewart, Jr., told the directors that the shipment of unripe and undersized fruit to the northern markets early in the season had cost the growers of Florida more than a million and a half of dollars.

In substantiation of his claim, Mr. Stewart presented in detail some figures from a lengthy report on the subject made by the sales department.

Early shipments of Parson Brown and other Florida oranges, he said, started off at good prices, but soon declined fully $1.50 a box, owing to the presence on the market of great quantities of unripe, undersized and decayed fruits. Buyers, he said, were unable to differentiate between the different grades of fruits offered and in consequence the good suffered with the bad, with the result that prices were greatly depressed.

Mr. Stewart declared that the market for all oranges was severely hurt and the same practices which contributed to hurt the orange markets worked to the great disadvantage of grapefruit.

Small sizes of fruit shipped also tended to hurt the prices, it being pointed out that an overplus of any particular run of size generally is hurtful to the markets. However, Mr. Stewart suggested that if much of the fruit shipped prior to December 1 had been held until more mature, there would have been considerably less proportion of small sizes.

Decay, which likewise has exerted a downward influence upon the markets to a great extent would have been avoided also by allowing fruit to remain longer on the trees. It was pointed out that when fruit thus hangs on the trees a certain amount of diseased fruit is shed by the trees, and this fruit would not have been included in shipments providing material for the start of decay.

Salesmanager Scott told the board the markets were showing a very keen demand for oranges, but that it was only for mature fruit in sound condition. He repeated the statement which he has made several times earlier in the season, that he believed the outlook was most satisfactory for prices to growers just as soon as it is possible to lay down good fruit in the markets in wholly satisfactory shape.

A committee consisting of Messrs. Warner, Hamlin and Wakelin was appointed to go into the matter of decay which this season, as last season, has been so troublesome on shipments, and to make a later report as to the possible cause for this condition and to suggest practical remedies which might be applied.

Among those present were E. Parkinson of Alva, A. G. Hamlin of DeLand, Dr. J. E. Klock of East Lake, S. C. Warner of East Palatka, D. C. Gillett of Tampa, H. G. Putnam of Oak Hill, P. C. Peters of Winter Garden, G. M. Wakelin of Tavares, J. W. Ponder of Sarasota, Dr. J. H. Ross of Florence Villa, C. E. Stewart, Jr., George A. Scott of Tampa, C. E. Borland of Buckingham, E. W. Raymond of Owanita, L. A. Hakes of Orlando, A. R. Sandlin of Leesburg, A. R. Barnes of Miami, William Hunter, Reid Curry of Tampa.

Over The Hills of Porto Rico

By Will f. Muse

There are one thousand miles of good roads, hard as a floor, on the island of Porto Rico and they shame the roads of Iowa and every other state in the Union. Swinging up and down grade, around precipices, in figure eights and curves never found in the geometries, they offer some whirl, literally realistic and many times hair-erecting. It is impossible to tell of all the grandeur and beauty of scenery, the raptures of riotous color of trees and flowers and landscape, the joys of fruit ripening in green and russet and gold, and the quaint things of an almost different race of people which give an exhilirating flavor to curiosity.

Our first day by auto from San Juan with its hillsides and narrow streets, past San Cristobal and the sea wall of medieval suggestion; then as by magic by the modern Y.M.C.A. building and public library, and then again in the sixteenth century suburb of Puerto Tierra; thence across the San Antonio bridge of modern construction with the quaint old fort of San Geronimo on the left, now the home of the American commandant, and the half hidden remains of the old walls and moats on the right.

San Juan is on an island, and when the bridge is crossed, the pretty residential district of Santurce of both modern American and Spanish architectures is reached.

We are now on the famous military road running from San Juan on the north coast to Ponce on the south coast, the second largest city in the island. The road is a wonderfully constructed highway and will ever remain an enduring monument to Spanish engineering and far-sightedness. In all the time of their occupation of the island the Spaniards built a little over one hundred miles of good road, most of it in the last fifty years of their occupation. Four years after Uncle Sam had taken possession of the island he had built over two hundred miles of as good roads, and now there are over eight hundred miles of splendid hard surfaced highways in our new possession.

Typical Scenes

Through Santurce we go past numerous beautiful concrete residences with palm-embowered gardens both in front and rear, past public schools which everywhere float the American flag; past a never-ending procession of people, trolley cars, autos, lumbering bull carts, horses laden with saddle boxes, army wagons drawn by six mules; huge auto trucks and two-wheel drays horse drawn; past barefoot natives, men and women with baskets of vegetables, fruit and eggs; past sportive youths carrying game cocks; past natives laden with every imaginable product of orchard or garden calculated to give local color; and past the little stores on wheels that correspond to the peanut vending carts in the United States.

Now we are out again through cocoanut palm groves to Rio Pedras, with its monastery, municipal hospital, normal school, university and reservoir which furnishes the water supply of San Juan. Great conically shaped hills—mountains they call them—reminding one of the Bad lands formation, flank the road, rising higher and higher to the Luquilla Range, said to be the highest in the island, and then comes the climb on the trail to be repeated several times on the way to Ponce.

There is always something to attract—the distant purple of the mountain; the haze which proves to be a short April shower, freshening the atmosphere and forming a natural sprinkler for the roads; the great stretches of sugar cane, reminding one of Iowa cornfields; great fields of pineapples or orchards of grapefruit and oranges with their heavy golden load; the long lines of flamboyant trees which in blossom make an arch like fire in the distance; banana trees hung already with clusters of fruit and the big pendant maroon blossoms; feathery clumps of bamboos big enough to land a shark; thatched huts high on the hillside nesting among the bananas; innumerable brooks flashing their silver and white ripples like bands of ribbons and strings of pearls far down the mountainside in the roof of green.

Soon what seems to be a toy town of little red roofed houses painted in all sorts of extravagantly bright colors, flashes in view from the crest of the summit of the mountain road and we are descending to Caguas, where our American school teacher is delightfully situated with a charming Baptist missionary, a Central American woman of culture and "States education" who is doing a marvelous work with other missionaries and the public schools for the natives.

Caguas with its environs is a city of 27,000, has one of the best insular schools and is the center of the great white expanses of cheesecloth covering not only acres but miles of tobacco fields cultivated to the very tops of the mountains, reminding one of Ringlings' circus tents in places, or snow fields in the distance. The scene is like many others in the island. The peons are at work in the fields by scores; the "jibaros" or farmers, trot by on their long haired ponies with their wicker paniers or saddle baskets loaded with chickens, eggs, vegetables, fruits and sometimes hats and embroideries and drawn work; the sight of the baskets and hats stirs firm resolve to possess similar ones and the search is fruitful. The omnipresent Nanny goat and her kids multiply as the journey continues but while the auto occasionally guillotines a chicken, or beheads a dog, a goat never becomes a vicarious sacrifice to the motor god—she or he is too nimble. Paranthetically the goat is the peon's dairy and the meat supply at times.

We leave Caguas to begin another climb, with new vistas of royal palms and serpentine curves, beetling precipices that every once in a while throw a scare and contracts chest expansion, and then the road is again down to Cayey with its military barracks, to creep again around more steep mountain sides to Aibonito, the highest town in the island. The road from Aibonito leads through dense groves of coffee, the ever green tropical verdure, and wooded ravines to Aibonito Pass, where we get the first glimpse of the Carribean Sea in the distance, a line of shimmering sapphire set in the rim of the hazy foothills on either side.

Ponce is a very interesting place. It is more decidedly Spanish than San Juan. It has good hotels, and a fine harbor. The Spanish architecture and bright tints of the houses give it a decided tropical and Spanish atmosphere. The plaza has its statue of Columbus, its cathedral and casino, different from anything on the island, and a big red fire station that looks warm enough to keep the firemen ever on duty.

Motorized Citrus Groves

By O. D. Wetherell

Formerly Citv Editor of The Tampa Times, now with Bruce Motor Truck Co.

A new kind of citrus grove is developing — the motorized grove, where automotive machinery is replacing horses and mules. With motor truck and tractor to carry on the work in the grove, more economically, both as to time and labor—and a dollars and cents saving at the end of the year as well—the day of the mule in the grove is passing. Each year will find more and more trucks hauling fruit, and tractors at work cultivating and plowing, and hauling spraying machines around.

The motor truck and the business man of the citrus industry are already partners, for in every section the truck is busy hauling fruit to packing houses. Speedier than mules, able to work all day and all night in an emergency, hauling heavier loads and doing many times as much work, with less labor expense and a great deal less upkeep, the truck has scored a decisive victory in the citrus industry. No owner of a grove of anything like fair size can afford to overlook the motor truck today.

From the biggest operators in the citrus industry to the farmer whose fruit is merely one of his crops, the truck is already in service today. Buyers of fruit, who purchase the crops on the trees, putting picking crews in the field and running packing houses, are using motor trucks to haul their fruit and saving money on every box. According to the men "in the know," they are making more money per box, by reason of profitable hauling with fleets of trucks, than buyers who pay for the fruit delivered at the packing house.

That is evident to anyone who will compute the cost of hauling fruit by motor truck, and figure the expense against the value of the service. Where fruit is moved at 3 cents per box per mile, under contract, or teams are hired at $7 or $8 a day, the cost each season is far and above the cost of owning and using motor equipment. Grove owners whose hauling bill runs to $1,000 or more a season have been quick to see the point—which accounts for the rapid increase in motor trucks in Florida.

Occasionally the motor truck salesman finds a grove owner who figures he must have mules for plowing and cultivating, and for other use about the grove, and that he is accordingly bound to use mules for hauling fruit. But his objection is answered by the argument that fewer mules can be made to do all the grove work necessary, with a truck doing the greater part of the hauling.

Mutor truck equipment is far more flexible, for when a car shortage, or a market fluctuation makes the demand for a greater quantity of fruit in a certain time—when fruit must be rushed to the packing house, if the best price is to be secured, or a shipment made at all—the truck is ready to respond with no limit to the hours it can be used. During the present season—and in past years—trucks have been operated in two shifts in order to meet an urgent demand.

Successful truck operation—and the writer, in his work with distributors for trucks in south Florida knows of many instances—frequently makes the truck pay for itself in a single season, and almost as a general rule the cost of a truck and its upkeep has been wiped out by the returns, either direct or indirect, inside of two years. Mighty few investments can be counted on to pay out completely in that short a time.

It is a fact, as many grove-owning truck operators can testify, that a truck can be profitably operated during the citrus season, and with the exception of more or less occasionally hauling of fertilizers and supplies during the rest of the year, be idle, and yet show a profit on the balance sheet at the end of the year. Truck owners have proven that the truck will stand up, in heavy grove service, hauling more than capacity loads out of the ploughed land, and helping every working day to make the citrus industry more profitable to the business men who are engaged in it.

With the growing use of tractors for cultivating, and their adaptability to the citrus tree spraying outfits, more trucks will be used in the future, for the mule is losing his stronghold—his service before the plow. The tractor and the truck, hand in hand, are going to bring the motorized grove to the front as typical of Florida's citrus industry. Power machinery of all kinds—electric, lighting and water plants—will supplement the grove owner's touring car and his truck, and indicate the progressiveness of the State's greatest industry.

WILL MANUFACTURE CITRUS BY-PRODUCTS

A combine has been recently formed at Avon Park, Florida, between local and northern capital in a by-products venture, which charter for incorporation is now before the governor. This company has been organized with the capital stock of $350,000, and is to be known as the Citrus Groves & By-Products Co., with packing houses, factories and groves at Avon Park.

A plot of ground has been purchased abutting the railroad, on the northern edge of the city, where siding from the railroad will be run out and the buildings necessary for carrying out the plans built. The general nature of the corporation will be to develop and cultivate groves; buy and sub-divide large tracts of land into groves and home sites; control its own packing houses and by-products factories with their own ice, warm and cold storage plants.

Among the men interested are A. V. Anderson, of Avon Park, a large citrus fruit grower, a strong exchange man, and who holds the presidency of the Exchange Loan & Guaranty Co. Other large stockholders are C. P. Anderson and H. P. McCurdy, of Pittsburgh, Pa., and S. P. Durrance, of Avon Park.

He Should Worry

South Africa citrus men apparently have their troubles in the handling of their fruit for the export trade, as evidenced by the following experience quoted by the South African Grower:

H. B. Davis, after four and a quarter years' service in France and Belgium was waiting at a dock in England for passage to South Africa, and observed the handling of fruit from one of the mail steamers which had just come in. He was "shocked to see the fruit thrown about like bricks." He remonstrated with one of the dockmen, saying: "Go a bit steady, old man, I make my living out of that." "I don't," was the only reply he received.

Confections from Orange and Grapefruit Peel

By E. M. Chace

The following recipes are designed primarily for home use. They produce fine confections from waste material and sugar. The methods of preparation are perhaps somewhat more troublesome to carry out than those for the ordinary run of home-made candies, but those who have tried them are uniformly of the opinion that the extra trouble is well repaid by the excellence of the products. There are few homes in this country where either orange or grapefruit peel or both are not available at times. Almost always these materials find their way into the garbage can, when they might be made into confections or put in a form where they can be used in cake or mince meat.

It is advisable for the first trial of the recipes to use small amounts of material so that if any failures are encountered, they will not be expensive. After experience has been gained, it will be found that the directions may be varied to some extent and results produced which may be more pleasing to the individual taste than the originals.

Candied Grapefruit Peel

Grapefruit peel can be made into a product very similar to the old-fashioned gum drop which has been replaced by the candies made largely of animal gelatine. The peel should be removed in such a way as to leave as little as possible of the white material clinging to the fruit. It is then cut into strips about two inches in length and about one-quarter inch wide at the center. This can readily be done with scissors or knife. Another and perhaps more convenient method is to cut into small squares of about an inch or discs of the same diameter. The directions which follow apply equally well to any form.

Two methods of cooking can be used, one using water alone, the other giving a preliminary treatment with lime water. Under certain conditions, the finished product at times has a slightly tough layer at the surface which was the outer surface of the original peel. This tendency can be overcome by the use of the lime water method, but usually results are almost as good where water alone is used. In using lime water, use only the clear water; do not use milk of lime. Lime water contains only a few tenths of one per cent of lime in solution and cannot injure the peel.

Place the prepared peel in a kettle and cover with a mixture consisting of 2 parts of water and 1 part clear lime water, cover and boil for half an hour. Pour off the liquid, again cover the peel with water and boil for half an hour. Do not use lime water after the first boiling. Where lime water is not available, use water alone the first time as on subsequent times. Repeat the boiling with fresh water each time until a piece of the peel, when removed, cooled and tasted, has about the same bitter taste that is desired in the finished product. The final product will be a little less bitter than the peel at this stage as some of the bitterness disappears on further cooking. The number of times the boiling in water must be repeated depends largely upon individual taste. Some persons like a decidedly bitter tang in the candied peel, while others prefer it without a trace of the bitter flavor. Usually three treatments will be sufficient where a rather bitter flavor is desired; five or six produce a very mild flavored peel; more than that number will result in a product without grapefruit flavor. It is better to boil for short intervals a number of times than to boil for longer intervals a lesser number of times.

When the peel has reached the desired flavor, pour off the water and drain the peel on a towel or cheese cloth; the excess of water can be removed by gentle pressure. Now prepare a syrup, using equal parts of granulated sugar and water, and cover the peel with this syrup. Boil very slowly for an hour or so, and allow the peel to remain in the syrup over night or longer if convenient. Finally boil again until the syrup becomes thick, stopping the cooking at the point where you usually do for jelly making; on a candy thermometer the point is about 219-220° F. The peel is satisfactory even if it is taken off before it reaches this point; over cooking tends to make it hard. While hot, drain the syrup from the peel as completely as possible, shaking repeatedly to remove the last drops. A colander can be used for this purpose. Now roll the peel in powdered sugar, separating any pieces that stick together. Cool and allow to remain in the air for several days to dry out. Then place in air tight jars or cans where it will keep for months. Honey, maple sugar or other substitutes can be used in part to replace the sugar, and produce a peel which will not harden with age.

It is sometimes desirable to prepare the peel in large pieces, so that it can be used as a substitute for citron. Where this is desired, the whole fruit can be dipped in boiling water for five minutes. On cooling, the skin can be cut through around the center and easily removed in halves. A small spatula, the back of a paring knife or even the thumb can be used to separate it from the fruit. The method of preparation is the same as with the smaller pieces, except that after draining off the syrup, it is not necessary to roll in sugar. In curing the larger pieces, they should remain in the air somewhat longer than the smaller before being placed in air tight cans.

Either class of peel can be used in many ways in making cake or candy. It will replace citron to advantage in fruit cake or in other cakes and can be used in the preparation of mince meat. Where home made chocolates are prepared, slices of the candied peel coated with chocolate will be found an excellent piece and will add variety to the usual assortment.

Candied Orange Peel

The same methods used on grapefruit peel with slight modifications can be used for orange peel. The best form for this peel is obtained by cutting into thin strips, about 1 inch long. This can be done with a mechanical slicer, slaw cutter or with a pair of scissors. If the peel is pared from the fruit in a thin ribbon similar to apple parings, these ribbons can be folded together and the ends clipped with the scissors or with a sharp knife. The finely cut peel is covered with water and boiled for an hour, being careful that the water is renewed so that all of the peel remains covered. Pour off the water and repeat this operation at

(Continued on page 23)

With California Citrus Growers

O. W. Cave of Redlands is now foreman of the Stewart Fruit Company's Anaheim house, succeeding G. R. Schee, who becomes traveling mechanic for the company.

A. N. Cox has sold his 22-acre citrus grove near Olive to J. L. Porter of Santa Ana for $55,000.

J. A. Stewart has been made assistant salesmanager of the Mutual Orange Distributors to fill the vacancy caused by the resignation of William Tillotson.

J. A. Stewart, traffic manager of the Mutual Orange Distributors, predicts that the California citrus crop will be considerably larger than that of last year.

John Hagen, manager of the San Gabriel Food Products Company, states that he has found twenty-nine by-products of the orange, and is considering a removal of the plant to Whittier that he may be assured of a sufficient supply of cull fruit for his purposes. His chief product at present is sliced orange peel, which is shipped after a process of dehydration.

C. Beaufort Hunt of Porterville, who has a 70-acre orange grove known as "Beaulieu," estimates his crop this year at 10,000 boxes.

Twenty-five fumigation crews were at work simultaneously in Los Angeles county this fall.

Fred Jacobs, assistant manager of the Pomona Fruit Growers Exchange has been made salesmanager of the Claremont Citrus Association, succeeding Frank Ford, who takes charge of his own grove.

J. M. Pettus of Pomona, horticultural inspector, warns against the purchase of oranges infected with purple scale, which he asserts have been offered by peddlers. He cautions all persons having such fruit to burn the peel.

The last of the 80-acre tract at West Highlands owned by a group of army officers, has been sold to the American Fruit Distributors, Inc. T. H. Peppers handled the transaction.

A large reservoir is being installed on the property of Mrs. Flora M. Dunn at Fallbrook, which will be used in irrigating her 40-acre grove.

Manager P. H. Norton of the Upland Citrus Association, reported at a recent meeting that 337,851 boxes of fruit were shipped last year, for which the growers received $1,285,339.54.

J. P. Coy, county horticultural commissioner, estimates the citrus crop of San Bernardino county this year at 10,718 carloads.

T. J. Cromer has sold his 10-acre lemon grove at Ontario to W. B. Cavers for a price of $30,000. Mr. Cavers also bought a six-acre grove from Hiram Waterman.

George E. Bender of Ontario has sold his ten-acre grove to F. F. Yates of Pomona for $27,000.

Dr. R. T. Smith of Pomona has bought six acres of navels and two acres of valencias near Ontario for $30,000.

Horace McPhee has sold his 15-acre grove at Villa Park to A. Bula for $32,500.

H. A. Frambach of Los Angeles has purchased 40 acres of orange and lemon grove at San Fernando, paying $65,000 therefor.

F. D. Young has resumed his experiments in frost protection in the Pomona valley for the U. S. Weather Bureau.

The Charter Oak Citrus Association last year shipped 642 carloads of fruit, for which the members received $865,020.39.

The Fallbrook Citrus Association last year sold fruit valued at $55,756 more than treble the sales of the previous year.

Alexis E. Frye, the school book publisher, has sold 140 acres in the Highland district to a group of San Bernardino men for a price close to $255,000. This is the largest sale reported in that section for some time. The properties sold include the Ginn, Waite, Millar, Rogers and Anderson groves.

Suggests Treatment for Brown Rot

The following letter from Prof. H. S. Fawcett of the Citrus Experiment Station, Riverside, will be of interest to all growers who have had any trouble with Brown Rot during past seasons. Prof. Fawcett's letter is, therefore, quoted verbatim:

"The Brown Rot, as is well known, is due to a fungus that lives from year to year in the soil, and when long periods of rains and humid atmospheric conditions occur, the fungus is able to multiply sufficiently to infect the fruit. This is thought to occur principally by the splashing up of spores in the rain drops from the surface of the soil or by first getting on fruits that touch the soil.

"My suggestion would be:

"1. To gather all the affected fruit under the trees or that are rotting on the lower limbs and either haul them off and destroy them or throw in the middle of the row where the sun can dry them out. The Brown Rot fruits should be gotten out from under the trees not only to avoid increasing this amount of Brown Rot for next year, but to avoid a possible increase of Gum Disease, as it is now known that the Brown Rot fungus also causes the Gum Disease, especially of lemon trunks (not the Scaly Bark Gum Disease of oranges), when the soil is excessively wet or piled too high about them. This is true particularly of heavy soils.

"2. In the fall, before or soon after the first heavy rains, and after fumigation if possible, the ground under the trees, the lower branches if they touch the ground, and the trunk may be sprayed with Bordeaux mixture (about 3-4-50 formula) to prevent infection from the fungus. If the soil or vegetable mulch has piled up too high against the trunk, this should be pulled away for a short distance so as to allow the spray to get down as far as the top of the first main roots and to allow the bark to dry out between rains. This will avoid most of the infections of Gum Disease which often occur during the winter and spring rains and the results of which do not show above the soil until two to four months later. This applies especially to low budded lemon trees on heavy soils, but also may apply to orange trunks to some extent. Where the soil is particularly heavy and the trees are subject to Brown Rot Gum Disease, it is often advisable in addition to the above to paint the trunks with the Bordeaux paste in the fall before the rains come on to prevent Gum Disease. If the soil is kept well pulled away from the trunks, and the trunks thoroughly drenched with the Bordeaux spray when spraying for Brown Rot, this will prevent practically all Brown Rot Gummosis on most soils.

"Where Bordeaux paste is used,

(Continued on page 23)

NECESSITY FOR CLEANLINESS

(Continued from page 5)

some examples of oranges which have thus shrunk without having been attacked by decay or mould.

If it were possible to give each and every orange or grapefruit ideal handling, the result would probably be that in the great majority of cases it would thus gradually lose its identity through shrinkage rather than through the attacks of decay. Unfortunately this is not possible, and it is necessary to accommodate ourselves to situations as they exist.

Aside from the usual precautions against actual injury to fruit by pickers and handlers, the first place where we can protect against the spread of infection from decay and blue mould is in the picking bags. These bags should not be carelessly thrown down in a corner where they may gather dampness and mildew when not in use, but should as far as possible be kept dry and at every opportunity during the picking season should be hung on a line or otherwise exposed to the sun's rays as much as is possible. Bags thoroughly sunned, both inside and out, are much more apt to be free from mischievous elements than those handled otherwise. Bags also may be sprayed at intervals and then hung out to dry with a considerable profit.

Field boxes come next and are subject to somewhat similar treatment.

The interior of the packing house holds great possibilities for the spread of infection. A packing house needs to be kept in sanitary condition. Water should not be allowed to drip upon the floor and there should be no unnecessary damp spots present. The interior of the packing house should admit of the fullest circulation of air and the presence of sunlight. The same thing which makes for happy, healthy efficient workers will yield a profit in turning out fruit in better condition. Every bit of fruit and rubbish should be gathered up from every portion of the packing house at the close of the day's work. There should be no dark places or unnecessary corners where rubbish may gather or which it is difficult to clean thoroughly. Some one employee of the packing house should be held directly responsible for its preservation in a clean and sanitary condition. The work may be divided up, but this employee must face responsibility for any shortcomings found. A packing house kept just as clean and tidy as a hospital is one which may be relied upon not to aid in spreading these infections. Generally speaking, it will pay to give the interior walls and ceilings a coat of a good mill white paint and the floors a like coat of a dark color in between seasons. The modern interior mill white which may be sprayed on walls and ceilings is not expensive, either as a material or in the cost of application, thanks to the modern painter's spray gun.

It is my opinion that every packing house should have a grading belt over which fruit first travels after it is dumped before reaching the washer tanks. Fruit which shows signs of decay and mould should be caught at this belt and never allowed to travel into the water tanks or washers. Once let blue mould get into the brushes of the washers and other places along the line and you have provided a source of unending trouble. This first grading belt or traveller should be of wood slats rather than canvas and so erected as to permit readily cleaning every portion of it. It should frequently be scrubbed with a strong solution and may be sprayed at frequent intervals to considerable advantage.

Even after fruit has been handled in a most cleanly and satisfactory manner in the fields and in the packing house the freight car presents often an obstacle to its arrival in the markets in properly sound condition. This is particularly true of cars which during the citrus shipping season are almost constantly in the service of citrus shippers. It is possible for a car to become infected just as it is possible for the interior of a packing house to become a harboring place for spores. Unless proper steps are taken to eradicate or control these spores in the car there is still the possibility of the infection spreading to otherwise sound fruit packing in the car for a long trip to the markets. Shippers in many places have awakened to this danger, and steps to offset it have been worked out. Experiments both in fumigating and in spraying have shown very satisfactory results. Experts of the U. S. Department of Agriculture who have been in touch with these efforts in a number of sections, I believe, are rather inclined to favor spraying over fumigation for this purpose.

The spray which has proven most satisfactory is of copper sulphate (bluestone) in the proportion of one pound of copper sulphate to fifty gallons of water. Soda sulphate in the proportion of three pounds to fifty gallons of water also has been used with good results, but the copper sulphate, or bluestone, solution seems to be the one best bet. Where this is used it is necessary afterward to thoroughly wash out tank and all pump parts to avoid injury. Limewater should be used for this purpose first, to be followed by a thorough washing out with fresh water to get rid of the Bordeau solution which results from mixing the bluestone and limewater.

After all cleanliness pays. We have found it to pay in stock breeding and in every department of farm and orchard work. Commonsense measures to assure a clean and sanitary condition of everything which has contact with a perishable product will yield substantially profitable results.

Big Citrus Crop

Fort Ogden has the largest citrus fruit crop this year it has had for twenty years. Citrus growers there have decided that spraying, fertilizing and cultivating their groves pays well and they are acting accordingly.

Proper Method of Picking Oranges

By A California Grower

All pickers should wear gloves, to guard against finger-nail scratches. The clippers should be sharp and properly set and adjusted so as not to leave any ragged fragments in clipping. Points should be dull or rounded in order to guard against cutting the skin of the fruit when bringing the clipper in position to sever the fruit from the branch. In order to do the work properly, especially where the picker must reach any distance for the fruit, the stems should first be cut long and a second cut be made when the fruit is brought to a position where the picker can easily see what he is doing. This method of clipping removes any and all excuse for clipper cutting or leaving of long stems. While this double cut may take a little longer, practice soon enables a picker to accomplish as much in this way as the other, if quality of work is given equal consideration with quantity. After the fruit is properly clipped it should be placed in the picking bag by hand, not dropped or thrown in as is too frequently done.

A heavy canvas bag carried from the shoulder by means of a strap and holding not more than half a field box is preferable as a picking receptacle. This bag should be partly closed at the top, making it necessary to place the fruit in the bag by hand and the bottom should be open but folded up on the side and fastened by hooks or ropes near the top so to make a sack or bag. In transferring the fruit to the field box, the whole bag is lowered into the box, the fastening and fold loosened, after which the bag is drawn upward and away allowing the fruit to roll out gently and remain in the field box. This type of bag is preferable to other picking receptacles from which the fruit has to be poured or emptied through the same opening used in picking. The things to guard against in using the picking bag are the danger of bruising the fruit between the ladder and the picker's body and the possibility of thorn puncturing through the canvas. If good heavy canvas is used, there is not much risk of puncturing. Great care should be exercised in handling and setting the ladders in order to avoid bruising the fruit against the ladder or limbs or scratching it on branches or thorns. Where three-legged stepladders can be used, they are preferable.

A common source of injury to fruit is the poor condition of the field box both in the field and the packing-house. Every box sent into the orchard or grove should be thoroughly inspected, kept in good repair, and free from protruding nails, splinters, gravel and twigs. A box entirely boarded over on the bottom is preferable, as this prevents injury by stems of weeds and other objects that might otherwise extend into the box and injure the fruit. The boxes should not be filled or heaped to such an extent that any fruit will rise above the end pieces, as otherwise the boxes when stacked will rest on the fruit instead of on the ends of the boxes themselves.

The wagon on which the fruit is hauled should always be provided with good springs, and no fruit, under any circumstances, should be hauled on springless wagons, no matter how good the roads may be. The utmost care should be used both in loading and unloading to guard against unnecessary jolting or rough handling. Where the heavier types of boxes are used, it is not an infrequent occurrence to see them set down or dropped with such force as to cause considerable fruit to bound out on the floor of the packing house. Care in handling the fruit both in the field and packing house is oftentimes largely nullified by careless, rough handling in hauling and unloading.

Where the picking is done by picking crews hired by the grower, shipper, or marketing organization, a good reliable foreman should be secured. It should be the duty of this foreman to see that all pickers do their work carefully and properly, that the clippers are in good condition, and that picking boxes are in good repair, and generally to supervise the quality of work in field handling. In order that he may know just what the pickers are doing he should make frequent inspection of each man's work, ascertaining by actual count the percentage of clipper cuts, long stems, and other injuries and imperfections. These duties, if properly and conscientiously performed, will require all his time, and in most cases he should not be required to do any picking. The payment of pickers by the day, instead of by the box, is preferable from the standpoint of securing careful and proper work, as box or piece labor usually puts a premium on quantity. Careful inspection of the character of work secured under the two systems of labor payment has shown conclusively that the pickers working by the day do on the average much better work. On the other hand, good work can be secured under either the box-payment or day-payment plan if the labor is properly supervised. The character of work done by a picking crew depends on the foreman, and the responsibility for the field handling rests primarily with him. An efficient foreman can secure careful work under either system of payment, though much more easily and surely where the pickers are paid by the day.

MILLION DILLOR CITRUS CONCERN AT ORLANDO

The Lakeview Citrus Company has been organized at Orlando, Florida, with the election of the following officers: R. K. Wilson, of Orlando, president; William Bauman, of DeLand, vice-president; S. L. Wilson, secretary, J. F. Ange, treasurer. John S. Rowland will be general manager.

An 1,100-acre tract of land purchased from James Beggs will be developed in citrus fruits. The tract lies about six miles west of Orlando, south of the Orlando-Oakland road, the purchase price was not named, but the development will represent an investment of more than one million dollars and the land will be easily worth $1,000 acre. This is one of the largest development projects in the history of Orange County.

During the past summer Orange Country set to new groves more acreage than any other county in the State.

This association with the company are: R. K. Wilson, S. L. Willson, R. A. McTyre, J. F. Ange, C. D. Christ, E. F. Elwell of Orlando, William Bauman, W. A. Bauman, H. C. Gooser of DeLand, L. E. Bauman, O. C. Bauman, Jay Yohe and F. H. Ohler of Pittsburgh, Pa., J. S. Rowland and C. P. Seldon of Lakeland. The company was planned by Elwell & Co.

Orlando Wants Citrus Exchange Headqaurters

An effort to secure the location of the Florida Citrus Exchange headquarters at Orlando was made by certain interests of that city at the last meeting of the directors of the Exchange.

The offer of a free site for the erection of a headquarters building and other inducements were held out by the promoters of the plan for securing the change of location from Tampa to Orlando. That certain interests at Orlando have been desirous of securing the headquarters of the Exchange for that city, has long been known, but the proposition submitted to the Exchange at its last meeting was the first definite step made in that direction.

D. C. Gillett, director from Hillsborough county, stated that he felt sure that Tampa would provide a suitable free site for a headquarters building whenever the Exchange decides to erect a building of its own.

Dr. J. H. Ross, president of the Exchange, stated that inasmuch as the Exchange is desirous of erecting a building of its own, and that numerous other cities are anxious to secure the location of the Exchange headquarters, that the matter of permanent location should be decided at once. With this object in view a committee was named, composed of H. G. Putnam, Oak Hill; P. C. Peters, Winter Garden; D. C. Gillett, Tampa; E. Parkinson, Alva, and J. W. Ponder, Sarasota.

This committee will make a thorough investigation of the advantages offered by Orlando and those offered by Tampa and will take into consideration a large number of points before reaching a decision. Among these will be transportation, telegraph and telephone facilities, water freight rates, etc. The Exchange has had its headquarters in Tampa ever since its organization and probably will not move unless it can be shown that a substantial benefit will result.

Have Faith in Florida Citrus Lands

Not only have the people of Florida who are acquainted with the citrus situation here, a growing faith in the future of the industry, but their faith is shared by far-seeing business men of other sections.

The truth of this is demonstrated by numerous recent purchases of large tracts of citrus lands, not only by people already engaged in the industry who are taking advantage of every opportunity to enlarge their holdings, but also by heavy purchases of citrus lands and groves by people of the north and west.

Sales of Florida citrus groves are of daily occurrence, and it is impossible to keep in touch with every transfer. Some of the recent changes in ownership, however, are of sufficient importance to merit special mention.

Activity in Lake County

Among these transfers are two recent sales of Lake county groves by W. J. Willingham, a noted citrus grower of Arcadia. Mr. Willingham has just sold to Montgomery & Crane of Tampa, a grove of 125 acres at Lake Park for a consideration of $75,000. This grove is mostly devoted to Parson Brown and Valencia oranges. The trees are about fifteen years old and are budded on sour stock. The grove contains between 8,000 and 9,000 trees.

Another Lake county grove sold by Mr. Willingham is located near Astatula. It contains 30 acres, has 1,200 trees, and was purchased by Railroad Commissioner Royal C. Dunn for $12,000. In addition to the grove, there are a number of acres suitable for development.

Creamery Men Buy Grove

J. H. and H. W. Fowler, creamerymen of Fairmount, Minn., have demonstrated their faith in Florida citrus groves by the purchase of 100 acres of land near Brownville, DeSoto county, for a consideration of $25,000. This land was bought of Cline & Noylan. There is forty acres of grove, the remainder of the land being uncleared. The tract contains two sets of grove buildings and a modern irrigation plant. H. W. Fowler will have active charge of the grove, while J. H. Fowler will continue to operate the creamery at Fairmount.

Dixie Groves Company Incorporates

Announcement is made of the incorporation of the Dixie Groves and Cattle Company, Nocatee, DeSoto county. This company is composed of Col. T. J. Watkins of Orlando, D. G. Barnett and A. J. Dozier of Arcadia, and the company is capitalized at $100,000.

The holdings of the company comprise 300 acres of choice land in the Nocatee citrus belt, forty acres of which are in grove.

In addition to the present grove of forty acres, fifteen acres of pineapple oranges will at once be set out. New barns, warehouses and other buildings are being constructed and 2,000 coke ovens have been installed to insure against danger of damage by frost. W. R. Yates will be the resident manager for the company.

At Mount Dora, Mrs. Eddy of Waukon, Iowa, purchased the Amborn home and grove on Lake Beauclaire; D. B. Kornegary of Goldsboro, N. C., purchased the Dr. Waller property, and Mr. Parker purchased the Swartz home.

At Sorrento, Peter Marler of Utica, Ill., bought the Anna Rook farm; and Richard Frances of Bradford, Pa., purchased the Otto Berls grove.

At Umatilla, Alva C. DeLong of Stoutsville, Ohio, purchased the Sperring place, and O. F. Posey of Cartersville, Ga., the Stanaland cottage and grove.

At Tavares M. B. Cox sold his grove to northern parties and purchased the Abrams opera house, which burned some years ago.

The Fruitland Park and Land Owners' Association is selling each week from ten to twenty tracts in their holdings. Last week one of the purchasers was a dollar-a-year war worker, a man of millions, who has purchased a large acreage adjoining golf links and bordering a lake, where he will make a show place.

The W. J. Howey Land Company has resumed operations on a 78,000 acre tract bordering Lake Harris. Last week a carload of Oklahomans made large purchases, one—a 160-acre tract—all to be set to groves. Next week a special train load of Canadians will arrive to look over the property.

The Lake County Relators' Association met Friday of last week and reported wonderful activity in all classes of realty. The association pooled interests to locate a prospect

(Continued on page 23)

GRAPEFRUIT NOT A LUXURY

(Continued from page 12)

grapefruit but nothing like the quantity of oranges handled. It so happened one of the larger stockholders of this chain is part owner in a considerable grapefruit property. After seriously considering the matter I took it up with the man, who was naturally interested in grapefruit, obtained his co-operation in putting the matter before the manager of these stores. After a good deal of effort he was persuaded to reduce his margin on the grapefruit so as to sell it on the same basis as he habitually sold the oranges. Somewhat indifferently he finally consented to try this, largely by way of an experiment. I confess I was more than gratified some three months later to receive a letter to the effect that in consequence of this policy these stores had increased their normal sales of grapefruit almost five times, and then were selling almost as many grapefruit as oranges, where before their sales of grapefruit had been almost negligible as compared with their sales of oranges.

This may be an unusual instance. The thing may not work out this way everywhere it is tried; but it seems reasonable to believe it will show very appreciable results wherever it may be put into practice.

Of course, there are some cities and some sections where grapefruit already is being sold upon this basis. The results obtained in these places afford abundant proof of the correctness of my theory, for in these sections we find the consumption of grapefruit per capita is away and above the per capita consumption in other localities.

Grapefruit will never outsell oranges. This is largely for the reason that oranges may be used both as a table food and be eaten between meals and away from home. Grapefruit as essentially a table fruit are thus slightly handicapped. However, there is a big consuming public yet waiting to become really acquainted with grapefruit and its desirability on the table at breakfast and other meals. Then let us apply ourselves to the task of banishing this luxury bugaboo. Everyone and every organization interested in producing or marketing grapefruit should aid in getting through the ivory dome of Mr. Average Retailer the fact that every possible purchaser of a grapefruit does not necessarily belong in the limousine class. When once convinced of this, he will be led to price grapefruit on a basis which during many months of the year will permit of its purchase by the well-paid man of the tin dinner pail. Incidentally, he will find himself not only handling a much larger quantity of grapefruit, but making more money upon it in consequence of a lesser amount of spoilage due to fruit left too long upon his hands.

SUGGESTS TREATMENT FOR BROWN ROT.

(Continued form page 19)

the following formula is good:

"Four pounds of bluestone dissolved in three gallons of water in a wooden, earthen or glass vessel; and eight pounds of lime slacked in three gallons of water. The bluestone is easiest dissolved by suspending it in a sack at the top of the water over night. If the bluestone is pulverized and suspended in warm water it dissolves rapidly. Good lime that is not air slacked should be used. If covered to avoid evaporation each ingredient will keep indefinitely. Where it is being used over a number of days or weeks, enough of the wet slacked lime and the bluestone solution should be mixed to make enough to last for one or two days, leaving the remainder unmixed in separate vessels. It may be applied with large brushes as is whitewash."

The above merits most careful consideration and it is suggested that the matter be put in the hands of any growers having groves more or less affected with this disease. It will be noted that the Bordeaux formula as now recommended is 3-4-50 instead of 5-5-50 as recommended some two years ago. This change has been made based on the experience of a number of growers who have used a Bordeaux spray of three lbs. bluestone, four lbs. lime and 50 gallons of water and found the results to be satisfactory. This weaker Bordeaux spray will cut down the cost of spraying somewhat and will give, the same efficiency as the stronger formula.

CONFECTIONS FROM ORANGE AND GRAPEFRUIT PEEL

(Continued from page 22)

least once. The peel should be tender before the treatment with boiling water is stopped, but not having the bitter taste of grapefruit peel, more than two treatments are usually not necessary. The tender peel is drained, covered with a fifty per cent sugar syrup and cooked as described under grapefruit. After the syrup is drained from it, it should be rolled in powdered sugar, dried and stored in tight containers.

The candied peel resulting from this preparation may be less like a confection than the grapefruit product, but it still has sufficient merit to recommend it for many purposes. It can be mixed with cake icing for layer cakes or mixed in the dough for cookies and other small cakes; can be employed to replace shredded cocoanut in home made candies and can be used in place of fresh peel in marmalade. Many firms are using similar products in mince meat so that it will readily replace citron in this way.

After becoming familiar with these comparatively unknown products, the ingenious house wife will find many other uses for them.

HAVE FAITH IN FLORIDA CITRUS LANDS.

(Continued from page 18)

who will soon arrive to buy a "show place" where he can spend part of his $10,000,000 a year income.

The Dr. W. Waller house and grove on Grand View and Woodland avenues has been sold to Dr. R. Kornegay of Goldsboro, N. C. Mr. Kornegay has been in Mount Dora several times of late with the view of buying a winter home in Mount Dora or elsewhere. He is now with Mrs. Kornegay to make this property their winter residence. Mr. Kornegay has purchased other property in Lake county and some in Polk county.

The G. W. Swartz home and grove on Highland avenue has been purchased by Mr. Parker. Mr. and Mrs. Schwartz do not give possession until the middle of April, so Mr. and Mrs. Parker will continue on the Eustis road, just beyond the Mount Dora town limits.

The George Auborn home and grove on Lake Beauclaire has been purchased by Mr. and Mrs. Eddy, of Waukon, Conn., who are occupying it. It is almost the last piece of property for sale on beautiful Lake Beauclaire.

Are you taking care of your spray pump? Go over all the different parts of the pump, cleaning them off and oiling them. Unless this precaution is taken your pump will be out of order when you will need it. The spray materials rust the metal parts, and they soon become useless unless they are cleaned and oiled when the season is over. Don't fail to keep the pump, and all other machinery under shelter when not in use.

Are June Drop, Citrus Blast and Bud Drop Related?

Writing on the above subject, P. A. Boncquet, plant pathologist of Lindsay, California, offers the following suggestions:

The bud drop and the twig drop are still to be observed in all the groves where the new growth is active.

Since I have started these observations, I am more and more impressed by a certain analogy existing between the citrus blast and the drop. In some cases, the analogy is singularly striking.

I am quite well acquainted with the form of citrus blast as it is observed in the Oroville section. Here it acts somewhat different from the real citrus blast. This plasticity of symptoms of the citrus blast has not received due attention. Citrus blast has been described as a crystalline form, with no angular differentation. To me it appears so elastic in form that it shapes itself according to the factors of the environment, the time of the year and the region where it occurs.

This plasticity would be nothing extraordinary. The organism of pear-blight also is exceedingly different in its effect. A blossom infection may cause the dropping of that same blossom and finish there. But the same infection, if circumstances are favorable, may run down the limb of the tree, girdle the main limbs and destroy the tree.

Analogy to Pear Blight

In pear blight a blossom, infected when it is very young, nearly always drops. When the infection has taken place somewhat later, so that the fruit had the opportunity to set, then it remains mostly on the tree. This is but consequent; when the flower is very young, its stem is all herbaceous. So long as it is herbaceous, this stem, with the fruit it supports, will easily drop if infected. The herbaceous tissues of the fruit stem, however, soon become woody; if the infection reaches the young fruit stem at this time, neither the fruit nor the stem will drop; but the fruit will dry up and remain on the tree mummified.

I would not be justified to call the drop of pear blossom a true abscission. I also cannot agree that June drop is a true abscission.

June Drp Defined

In June drop and blossom drop of oranges, nearly the same picture of symptoms can be observed as in pear blight. The early blossoms fall with their stemlet. Even the fruit, so long as it has not attained a certain size (about the size of a pea), also falls with its petiole attached. But when the fruit is somewhat larger, when the wood tissue of the little stem has developed, then it remains on the tree. Many times the fruit does not fall either; it dries and mummifies on the tree.

When the apparent infection with June drop has been very mild, or when it has remained latent for a certain time, it looks as if the organism had not had the force to enter the stemlet at all. Then hot weather apparently revives its activities. It reaches the natural abscission ring of the fruit and ripens prematurely its cells. Then the fruit drops, sometimes in June, sometimes in August or September or even later. There is even fruit that is infected, but does not drop at all.

The question whether the blossom shall drop or whether the fruit shall drop with its peduncle or without its peduncle or whether the fruit shall not drop at all, seems to be a question of time, intensity and virulence of the infection.

My observations at Oroville left me under the impression that a great deal of the so-called June drop there was directly due to blossom infection by the same organism which causes Citrus blast.

Pear Blight Also Has Twig Infection

Then pear blight exists also under the form of twig blight. We have on the citrus a twig infection, which may cause the twig to drop or to remain on the tree as a dieback. Infection through the stomata in pear blight is possible and even very probable, according to recent investigations. The very young stamata of the navel orange are not protected against infection, so a twig infection through the stomata may be a reality.

In another paper, I alluded to the analogy between June drop, blossom drop and twig drop of citrus fruits. Now, the analogy between citrus blast and some forms of twig drop is exceedingly striking. So, the way it appears to me now, it looks as if the June drop, twig-and blossom drop, and citrus blast are different forms of one and the same disease.

These few remarks must be taken in the spirit in which they have been written. They are given out at this time, so that other investigators may help to solve the great problem of June drop. These remarks are the fruit of observations, certainly incomplete, owing to the fact that our study is so recent.

HAVE REAL RAINFALL IN PORTO RICO CITRUS SECTION

The Pacific Coast Packer quotes H. E. Cornell, a Jacksonville, Fla., nurseyman, who had just returned from Porto Rico, as saying that on the whole crop conditions were excellent on the island. Mr. Cornell gives the annual crop as 1,000,000 boxes and says that much of this is grapefruit. In the mountains the annual rainfall is something like 140 inches, and in the coastal regions, where the citrus fruit is cultivated, he says it runs from 60 to 80 inches a year. There apparently is no well-defined rainy season. Blossoms ordinarily follow a heavy rain after a short drought. There is usually a bloom in early January and another in late March.

The fruit is of excellent quality, according to Mr. Cornell, but it does not color as readily as Florida fruit, as they have no cool weather. The amount of good citrus land is very limited. A few groves are in excellent condition, but the majority show neglect, according to the gentlemon quoted. They never worry about frost, as the temperature does not get below 50. No red scale or white fly trouble is experienced.

Life of a Lemon Tree

That lemon trees in foreign countries live and bear fruit up to 75 and 80 years of age is the statement of Prof. R. W. Hodgson, farm advisor for Los Angeles County. Prof. Hodgson states that in his opinion the length of bearing life of a lemon tree in California depends entirely on the conditions surrounding it as to character of soil and general treatment accorded the tree. He declares that there are lemon trees in this State only 15 to 20 years of age which are on the decline but attributes that condition to general conditions. He refers to other orchards in which there are trees in productivity which are nearly twice that age. Mr. Hodgson is of the opinion that lemons have not been grown long enough in this State to form any definite conclusions.